

Date: Sat, 30 Oct 93 04:30:40 PDT  
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Homebrew Digest V93 #88  
To: Ham-Homebrew

Ham-Homebrew Digest                      Sat, 30 Oct 93                      Volume 93 : Issue    88

Today's Topics:

Help:College wants to broadcast  
  how to: spl meters (2 msgs)  
Inexpensive source of crystals  
  Phase-lock to WWV ? (4 msgs)

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 27 Oct 1993 17:46:35 -0500  
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!vixen.cso.uiuc.edu!  
moe.ksu.ksu.edu!matt.ksu.ksu.edu!news@network.ucsd.edu  
Subject: Help:College wants to broadcast  
To: ham-homebrew@ucsd.edu

Hello,

The University I attend has a radio station but it doesnt  
broadcast over the air its signal is sent through cable only! The head  
of the department doesnt know what needs to be done to broadcast so I  
have been asked to check in to it. I need any info on FCC regulations  
(ie Lisences, minimum Wattage, etc.) I also need info on obtaining  
or making a transmitter, antanae, etc. Please E-mail me any info you  
can including Internet sites were I can ftp etc.  
Thanks for your time and effort!

fredh@matt.ksu.ksu.edu

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Date: Fri, 29 Oct 1993 19:13:50 GMT  
From: sdd.hp.com!col.hp.com!srngenprp!alanb@network.ucsd.edu  
Subject: how to: spl meters  
To: ham-homebrew@ucsd.edu

lewisbc@bcvms.bc.edu (lewisbc@bcvms.bc.edu) wrote:  
: What would be necessary to make an inexpensive spl meter?  
: And if made, how would you calibrate it? any info would be  
: useful

Assuming "spl" means "sound pressure level" it wouldn't be hard.  
Use a broadband condenser mic and an audio amplifier feeding a  
true rms detector into a meter. Borrow a lab-grade SPL meter  
to calibrate.

If you want to include the human-ear frequency weighting (I think  
it's called A-weighting), you would have to get the specs on  
that and design a filter with the right frequency response.

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Date: 29 Oct 1993 19:32:01 GMT  
From: sdd.hp.com!nigel.msen.com!spool.mu.edu!howland.reston.ans.net!  
usenet.ins.cwru.edu!lerc.nasa.gov!news.larc.nasa.gov!grissom.larc.nasa.gov!  
kludge@network.ucsd.edu  
Subject: how to: spl meters  
To: ham-homebrew@ucsd.edu

In article <CFoAr2.HyE@srngenprp.sr.hp.com> alanb@sr.hp.com (Alan Bloom) writes:  
>lewisbc@bcvms.bc.edu (lewisbc@bcvms.bc.edu) wrote:  
>: What would be necessary to make an inexpensive spl meter?  
>: And if made, how would you calibrate it? any info would be  
>: useful  
>  
>Assuming "spl" means "sound pressure level" it wouldn't be hard.  
>Use a broadband condenser mic and an audio amplifier feeding a  
>true rms detector into a meter. Borrow a lab-grade SPL meter  
>to calibrate.  
>  
>If you want to include the human-ear frequency weighting (I think  
>it's called A-weighting), you would have to get the specs on  
>that and design a filter with the right frequency response.

True enough, but it's actually not an easy task, because your friendly  
broadband condenser mike is still not very flat (unless you find some

surplus B&K lab mikes somewhere). You need a network to compensate for the frequency response of the capsule first.

Radio Shack, of all folks, makes an acceptable SPL meter for about \$30. It's good only down to 50 dB SPL or so, because of the self-noise of the cartridge, but in the range that it works, it does well enough. Better calibrate it before using, though.

--scott

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"C'est un Nagra. C'est suisse, et tres, tres precis."

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Date: Fri, 29 Oct 1993 20:17:33 GMT  
From: walter!att-out!cbnewsh!wa2sff@uunet.uu.net  
Subject: Inexpensive source of crystals  
To: ham-homebrew@ucsd.edu

I purchased a 2 meter HT board set from Surplus Sales of Nebraska and I want to get crystals for them. I have the crystal information and I have a JAN catalog. JAN charges \$7 for 2M ham crystals but \$11.00 for converted commercial radios. The ad for the board set claimed that the boards were from a 2M HT made by Midland but the information supplied with the boards set seems to indicate that it was from a commercial HT. I think Midland made a two meter HT but I can't find any information about it. Does anyone remember it or know anything about it?

So either:

I need to find a 2 meter rig that uses 16 MHz transmit crystals and 42 MHz receive crystals and has a 21.4 MHz IF,

or

I need a cheaper source of crystals.

Has anyone else had the same problem and how have you solved it?

I don't want to pay as much for one crystal set as I paid for the HT board set.

Joe Wilkes, WA2SFF  
j.e.wilkes@att.com

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Date: Fri, 29 Oct 1993 05:51:12 GMT  
From: rtech!amdahl!netcomsv!netcom.com!wa2ise@decwrl.dec.com

Subject: Phase-lock to WWV ?  
To: ham-homebrew@ucsd.edu

In article <Pg12Bc2w165w@inqmind.bison.mb.ca> bills@inqmind.bison.mb.ca (Bill Shymanski) writes:

>Someone must have a reference for this. It occurs to me that  
Saw this in one of the ham mags sometime in the past ten years, but  
I can't remember better than that.

>if I could only derive a nice local 10 MHZ sine wave that really  
>was phase-locked to WWV, that I'd have an excellent local frequency  
>standard and a good way of calibrating my counter.

> So, what I need is a little black box that plugs into my SW  
>set and that has a nice BNC connector on it labelled "10.000000 MHZ  
>when propagation is good".

The article I did see described a receiver that was a conventional  
superhet (front end, local oscillator, mixer, IF, detector, audio amp)  
with an extra mixer stage taking the amplified IF and mixing it back  
up to the original received frequency. In this case, WWV's carrier  
frequency.  $WWV - LO = IF$ , then  $IF + LO = WWV$ 's freq.

Better have really good shielding to keep your output from getting  
into the front end (you're making a strong signal on the same freq that  
you're trying to receive a real station on.)

> Do the "synchronous detectors" they are talking about on rec.  
>shortwave truly phase-lock to the carrier? Would they be as  
>stable as WWV itself, barring of course propagation effects?

This would get you the carrier freq of your IF strip. But you could use  
this to mix with the same LO you used to convert WWV to the IF in the first  
place, as described above.

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Today on Donahue: "Men who sleep with their wives"

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Date: Tue, 26 Oct 93 19:56:24 CDT  
From: newsflash.concordia.ca!mizar.cc.umanitoba.ca!bison!sys6626!inqmind!  
bills@uunet.uu.net  
Subject: Phase-lock to WWV ?  
To: ham-homebrew@ucsd.edu

Someone must have a reference for this. It occurs to me that  
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was phase-locked to WWV, that I'd have an excellent local frequency  
standard and a good way of calibrating my counter. I've tried to  
do this by ear, by beating a local RF source against WWV and  
tuning for zero beat; but its hard to hear low frequency audio on  
my SW receiver so the best I can say is that my counter is probably  
within the 10 ppm that the maker says its good for ( 10 PPM = 100 HZ  
at 10 MHZ, I can hear 60 HZ or less on the speaker so I know I've

zero-beated better than this).

So, what I need is a little black box that plugs into my SW set and that has a nice BNC connector on it labelled "10.000000 MHZ when propagation is good".

Do the "synchronous detectors" they are talking about on rec. shortwave truly phase-lock to the carrier ? Would they be as stable as WWV itself, barring of course propagation effects ?

Bill VE4STW

bills@inqmind.bison.mb.ca

The Inquiring Mind BBS, Winnipeg, Manitoba 204 488-1607

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Date: Thu, 28 Oct 1993 09:28

From: agate!library.ucla.edu!news.mic.ucla.edu!MVS.OAC.UCLA.EDU!OSYSMAS@ames.arpa

Subject: Phase-lock to WWV ?

To: ham-homebrew@ucsd.edu

In article <Pg12Bc2w165w@inqmind.bison.mb.ca>,  
bills@inqmind.bison.mb.ca (Bill Shymanski) writes:

>Someone must have a reference for this. It occurs to me that  
>if I could only derive a nice local 10 MHZ sine wave that really  
>was phase-locked to WWV, that I'd have an excellent local frequency  
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>set and that has a nice BNC connector on it labelled "10.000000 MHZ  
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>shortwave truly phase-lock to the carrier ? Would they be as  
>stable as WWV itself, barring of course propagation effects ?

Most of the error in WWV is propagation effects. NIST Special Publication 432 (Revised 1990) says that WWV is transmitted with an accuracy of about 1 part in 100 billion ( $1 \times 10^{-11}$ ). The received accuracy is only about 1 part in 10 million ( $1 \times 10^{-7}$ ). Still that would be about 1 cycle at 10Mhz.

You could try this:

- tune in the WWV carrier in CW mode

(probably easier during a silent period, however beware that the 100Hz time code continues -- you want the carrier not one of the sidebands).

- measure the audio frequency
- switch the receiver input to your local RF source
- adjust your local RF source to produce the same audio tone
- measure the RF frequency of your RF source

This avoids looking for "zero" beat...

> Bill VE4STW  
>  
>  
>bills@inqmind.bison.mb.ca  
>The Inquiring Mind BBS, Winnipeg, Manitoba 204 488-1607

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Date: Thu, 28 Oct 1993 14:44:18 GMT  
From: agate!spool.mu.edu!sgiblab!sgigate.sgi.com!odin!chuck.dallas.sgi.com!  
adams@ames.arpa  
Subject: Phase-lock to WWV ?  
To: ham-homebrew@ucsd.edu

In article <Pg12Bc2w165w@inqmind.bison.mb.ca>, bills@inqmind.bison.mb.ca (Bill Shymanski) writes:

|> Someone must have a reference for this. It occurs to me that  
|> if I could only derive a nice local 10 MHZ sine wave that really  
|> was phase-locked to WWV, that I'd have an excellent local frequency  
...stuff deleted  
|> Bill VE4STW  
|>  
|>  
|> bills@inqmind.bison.mb.ca  
|> The Inquiring Mind BBS, Winnipeg, Manitoba 204 488-1607

Bill and gang,

Heathkit, in their Most Accurate Clock, did something similar to this in that they locked a 3.60000000 internal time base to WWV signal. When it is locked a little green LED comes on. I use it all the time to check the frequency counter. Works great. You might want to look at how they did it and extrapolate from there.

I never had the time and still don't, but I think it would make a nice group project (hint) to come up with a cheaper alternative, say 10MHz WWV DC receiver and cheap micro with EPROM to create a clock/time base.

Keep it simple and keep it small.

Somebody come up with the first pass. The critics will take it from there.  
:-)

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SIG

-----cut here-----

Chuck Adams, K5FO - CP60  
adams@sgi.com  
QRP ARCI Awards Chairman

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Date: Wed, 27 Oct 1993 21:50:34 GMT  
From: agate!howland.reston.ans.net!vixen.cso.uiuc.edu!uchinews!att-out!cbfsb!  
cbnews!cbnewst!cbnewsm!jeffj@ames.arpa  
To: ham-homebrew@ucsd.edu

References <1993Oct26.164824.6621@koccrsv01.delcoelect.com>,  
<fede0001.751739487@gold.tc.umn.edu>, <CFKFGw.65E@walter.bellcore.com>s  
Subject : Re: How to do CW with a cb?

In article <CFKFGw.65E@walter.bellcore.com> whs70@dancer.cc.bellcore.com  
(sohl,william h) writes:

>Hello, everybody in the group!! I am looking to practice the code to get an  
>amateur license, and would like to know if there is a way to make a cb radio to  
>transmite in CW, or how to make it transmute with a "fake" CW  
>

>In article <fede0001.751739487@gold.tc.umn.edu> fede0001@gold.tc.umn.edu (Jimbo)  
writes:

>>I agree. No sense in sending CW over the airwaves to learn, when you can  
>>just build or buy a CW practice keypad. That, along with practice tapes  
>>can help you learn your code without being a nuisance on CB airwaves.  
>>Of course, what \*isn't\* a nuisance on the CB airwaves? :)

Considering the strange noises I have heard on CB nobody would notice  
CW. "Lord God Billy Bob, you hear them crickets on here? Think I'll turn  
on the linear and drown them out." Then again the FCC might ignore every  
thing else on CB and tag you for doing something actually radio related.

73!

Jeff

--

Jeff Jones AB6MB		OPPOSE THE NORTH AMERICAN FREE TRADE AGREEMENT!
jeffj@seeker.mystic.com		Canada/USA Free Trade cost Canada 400,000 jobs.
Infolinc BBS 510-778-5929		Want to guess how many we'll lose to Mexico?

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End of Ham-Homebrew Digest V93 #88

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